REMARKS

Status of the claims:

With the above amendments, claims 1 and 26 have been amended. Claims 1-32 are pending and ready for further action on the merits. No new matter has been incorporated. Reconsideration in light of the following remarks is respectfully requested.

Rejections under 35 USC §112, second paragraph

Claim 26 has been rejected under 35 USC §112, second paragraph as being indefinite. The Examiner asserts that claim 26 is indefinite because variable "y" has not been defined. With the amendment to claim 26, wherein "y" has been defined, it is believed that this claim is no longer indefinite. Withdrawal of the rejection is respectfully requested.

Rejections under 35 USC §103

Claims 21, 23-25, and 30 have been rejected under 35 USC §103(a) as being unpatentable over Peker '642 (US Patent No. 5,896,642).

Claims 1-20, 22, 26-29 and 31-32 have been rejected under 35 USC §103(a) as being unpatentable over Peker '642 in view of Aizawa '968 (US Patent No. 5,465,968).

These rejections are traversed for the following reasons.

Attached to this response please find Table 1, which shows a comparison between the instant invention and the disclosures of Peker '642 and Aizawa '968. In particular, Table 1 shows the elements of claims 1, 5 and 21 of the instant invention contrasted with the disclosures of the cited references. These references fail to disclose all the elements of claims 1, 5 and 21, which should be obvious from an observation of Table 1.

In particular, neither Peker '642 nor Aizawa '968 exhibit tensile strengths or Young's moduli as is disclosed in the instant invention. The ranges that these references disclose are outside of the claimed ranges of the instant invention. The Examiner has asserted that one can use inherent teachings in rejections. Applicants agree with this. However, when the inherent teachings are outside of the claimed range, those references can no longer be used to support an obviousness rejection. Accordingly, because there is no disclosure of the claimed ranges, nor is there any suggestion in either of the references to modify these ranges to arrive at the instant invention, their use is inapposite.

Applicants submit that the Examiner's theoretical composition can not render obvious the instant invention. Peker '642 discloses an amorphous alloy composition close to the embodiment of the present invention, but this composition is not

the same (see Table 2 for a comparison of the disclosure of Peker '642 with the composition of the instant invention). The Examiner asserts that if the compositions are similar, then one can guess characteristics, such as Young's modulus and tensile strength. Applicants vigorously disagree with this assertion.

The Examiner also asserts that optimizing the characteristic of a face so that a specific golfer's needs may be suited is obvious. Applicants submit that it is not obvious to modify characteristics when the references disclose these same characteristics that are outside of the claimed ranges (see Table 1) particularly when they do not disclose or suggest modifications.

Attached to this response, Applicants also submit Table 2 which discloses the concrete compositions of Peker '642 contrasted with the compositions of the embodiments of the present invention. The Examiner should note that Peker '642 fails to disclose the same composition as the embodiments of the present invention. Table 2 does not show that the tensile strength (194kgf/mm^2) that Peker '642 discloses falls outside of the ranges disclosed claim 1 and 21 (105 to 175kgf/mm^2) of the instant invention. One of ordinary skill in the art might attribute this to the fact that although the elements blended are similar to the instant invention, the concrete amounts of each element differ.

Because the element composition differs, the Young's modulus also likely differs. Whether or not the Young's modulus is within the ranges disclosed in the present invention can not be readily determined by the written description of Peker '642 or the knowledge of one of ordinary skill in the art. Applicants further submit that the Examiner has not supported the assertion that the Young's modulus can easily be modified to suit a specific golfer and Applicants submit that this burden is on the Examiner.

Moreover, Fig. 5 of Aizawa '968 shows a clubhead of conventional technology. The back of the head of the hitting part is not supported by a support member. Aizawa '968 discloses that a thickness of at least 6 mm is required for the face plate of pure beryllium in order to prevent damage to the clubhead (see column 2 lines 14-17). Aizawa '968 also discloses thicknesses of face plates in the range of 2 to 3mm, as disclosed in Figures 2 and 4, but in both of these figures, the backs of each face plate are supported by a support wall. Therefore, Applicants submit even if Aizawa '968 is considered, the present invention is not obtained.

Furthermore, Peker '642 discloses pressing a face plate fit in the cavity of the head main part, and combining both members internally. Applicants thus submit that there would be insufficient room to take the model disclosed in Fig. 5 of

Aizawa '968 into consideration with the disclosure of Peker '642 to generate the instant invention. Finally, the purpose of inventions of Peker '642 and Aizawa '968 is to reduce the deflection of a face part. This is in contrast to the present invention, the purpose of which is to enlarge the deflection of a face part, which increases the distance of a golf ball.

Accordingly, Applicants submit that because neither Peker '642 nor Aizawa '968 disclose the elements of the instant invention (either explicitly or inherently) they can not render obvious the instant invention. The ranges that they disclose for tensile strength and Young's modulus fall outside of the claimed ranges. Also, because the purposes of the Peker '642 nor Aizawa '968 are different, there is no motivation in either of the references to modify them to arrive at the instant invention.

For the reasons above, withdrawal of the rejections is warranted and respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, Andrew D. Meikle, in the Washington metropolitan area at the phone number listed below.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of $110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments: Table 1
Table 2

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows.

Claim 1. (Four times Amended) A golf club head comprising a hitting face for golf balls, said hitting face formed at least partially by a metallic
material, and said metallic material satisfying the following relation:

$$y \geq 0.006x + 60$$

wherein
x is Young's modulus in units of kgf/mm^2, and
y is tensile strength in units of kgf/mm^2, and
wherein said metallic material has a young's modulus of 3,000 to 12,000 kgf/mm^2, and a tensile strength of [80 to 400] 105 to 175 kgf/mm^2 and
said hitting face has at least partially a hitting portion which consists of said metallic material with a thickness of 1 to 3 mm.

Claim 26. (Amended) A golf club head according to claim 7, wherein said metallic material satisfies the following relation: $y \geq 0.006x + 63$ wherein y is tensile strength in units of kgf/mm^2.

Table 1

	Present Invention	Peker	Aizawa
claim1	Young's Modulus: x kgf/mm^2 Tensile strength:y kgf/mm^2 $y \geqq 0.006x+60$	No	No
	x :3000 to 12000 kgf/mm^2	No	No:30000 kgf/mm^2
	y :105 to 175 kgf/mm^2	No : 194kgf/mm^2	No
	Hitting portion which consists of metallic material has a thickness of 1 to 3 mm.	No The face plate is surpoted by the head main body.	No The each face plates shown in Fig.2 and 4 is surpoted by the surport wall. The face plate shown in Fig.5 has a thickness of more than 5mm.
claim5	Young's Modulus: x kgf/mm^2 Vickers Hardness: z HV $z \geqq (x/60)+200$	No	No
	x :3000 to 12000 kgf/mm^2	No	No:30000 kgf/mm^2
	y: 400 to 1000 HV	No	No
	Hitting portion which consists of metallic material has a thickness of 1 to 3 mm.	No The face plate is surpoted by the head main body.	No The each face plates shown in Fig.2 and 4 is surpoted by the surport wall. The face plate shown in Fig.5 has a
claim21	Young's Modulus: x kgf/mm^2 Tensile strength:y kgf/mm^2 $y \geqq 0.006x+60$	No	No
	x :5000 to 16000 kgf/mm^2	No	× : 30000 kgf/mm^2
	y :105 to 175 kgf/mm^2	No : 194 kgf/mm^2	No

Table 2

Alloys composition of Peker

composition	Zr	Ti	Be	Ni	Cu	Fe	Co	Mn	Hf	Al	Mo	Cr
type-a	41.2	13.8	22.5	10	12.5							
type-b	46.75	8.25	27.5	10	7.5							
type-c	25～85	5～70							5～35			
type-d	60			25						15		

Alloys composition of the embodiment of this present invention

composition	Zr	Ti	Be	Ni	Cu	Fe	Co	Mn	Hf	Al	Mo	Cr
ex.1	54			5	30				1	10		
ex.2,11	64			10	15				1	10		
ex.3,4,6,9,12	55			5	30					10		
ex.5	50			10	20					10		
ex.7,10	55			10	25					10		
ex.8	54			10	15				1	10		